UNION CARBIDE CHEMICALS & PLASTICS COMPANY INC.
Environmental Protection Department Sistersville, WV

March 8, 1991

Memorandum to: E P Shift Coordinators

xerox copy: J. W. Meyer
R. E. Tuttle

Re: PCB Equipment at Sistersville

Please be aware that there are 25 PCB capacitors remaining in service at the plant.

Attached is a summary detailing the location for each of these capacitors.

All remaining PCB items (i.e., capacitors) in the plant are scheduled to be replaced as time permits. As PCB capacitors are removed from service, a PCB Action Report will be circulated to keep the attached summary list current.

I will notify each of you by memo when the Sistersville plant attains PCB free status.

Please keep in mind that fluorescent light ballasts in the plant may contain small quantities (approximately 1 to 1-1/2 ounces) of PCB fluid in the capacitor itself. If the ballast fails, the capacitor <u>may</u> break open allowing the PCB oil to drip out of the fixture.

If you have any questions concerning any of the items above, feel free to contact me.

J. A. Selnekovic

JAS/pcbloc

Attachments

Sistersville Plant

PCB Capacitors

In service location	Tag No.
Comp Bldg. 42 MCC	5
Comp Bldg. 42 MCC	6
Sub A MCC	13
Sub A MCC	14
Sub A MCC	15
Sub B MCC	38
Sub B MCC	39
Sub B MCC	40
Sub B MCC	41
Sub B MCC	42
Sub B MCC	43
Sub B MCC	44
Sub B MCC	45
Sub B MCC	46
Sub B MCC	47
Sub B MCC	48
Sub B MCC	49
Sub B MCC	50
Sub B MCC	51
Old 42 MCC	76
Old 42 MCC	77
Sub B Bank B3A	96
Sub B Bank B3A	97
Sub B Bank B3A	98
Sub B Bank B3A	99

United States
Environmental Protection
Agency

Region 10
1200 Sixth Avenue
Seattle WA 98101

Air & Toxics Division

EPA

PCBs in Fluorescent Light Fixtures

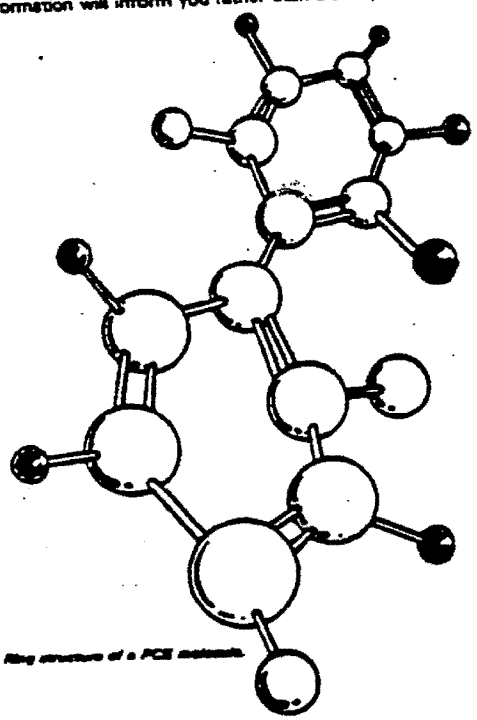
A Fact Sheet

MPM001033

EPA005218

Introduction

The purpose of this brochure is to provide some basic information on polychlorinated biphenyls (PCBs) and guidelines for handling PCBs in fluorescent light fixtures. Although the precautionary actions described in this fact sheet may seem extreme, or suggest to some that cleanup of a small PCB spill is personally hazardous, this is not generally so. For example, if you should get a small amount of PCB on your skin during cleanup, it is highly unlikely that you would be harmed. However, given the nature of PCBs and the fact that much is still unknown about the effects of minor exposures, no absolute guarantees or reassurances can be given. For that reason, EPA has chosen to describe a conservative approach which minimizes personal hazard. It is EPA's hope that this information will inform you rather than alarm you.



Ring structure of a PCB molecule.

What Are PCBs?

PCBs (polychlorinated biphenyls) belong to a broad family of organic chemicals known as chlorinated hydrocarbons. PCBs are produced by the combination of one or more chlorine atoms and a biphenyl molecule. Virtually all PCBs in existence today have been synthetically manufactured.

PCBs range in consistency from heavy oily liquids to waxy solids. Prior to 1979, PCBs were widely used in electrical equipment such as transformers, capacitors, switches, and voltage regulators for their "cooling" properties because they do not readily burn or conduct electricity, and only boil at high temperature. Also, PCBs do not readily react with other chemicals. They were also used in mining equipment, heat transfer and hydraulic systems, carbonless copy paper, pigments, and microscopy mounting media.

Why Are PCBs Harmful to Human Health and the Environment?

When released into the environment, PCBs do not easily break apart and form new chemical arrangements (i.e., they are *not* readily biodegradable). Instead, they persist for many years, bioaccumulate, and bioconcentrate in organisms. Laboratory data show that PCBs cause cancer in animals. Although there are no actual data showing that PCBs cause cancer in humans, EPA's policy is to consider any animal carcinogen a possible human carcinogen. Animal studies show adverse reproductive and developmental effects from repeated exposure to PCBs. In addition, it has been shown that PCBs are toxic to fish at very low levels of exposure. The survival rate and the reproductive success of fish can be adversely affected by the presence of PCBs. EPA believes there may be similar cause for concern when humans are exposed to large doses of PCBs. Exposure to PCBs can cause chloracne (a painful, disfiguring skin illness), nausea, dizziness, eye irritation, and bronchitis. Ingestion of PCBs can cause liver damage and digestive problems.

How Does EPA Regulate PCBs?

EPA regulates PCBs through rules issued pursuant to the Toxic Substances Control Act of 1976. These regulations generally control the use, marking, storage, records, and disposal of PCBs. There are millions of pieces of equipment in operation in the U.S. which were manufactured prior to these regulations and which contain PCBs.

Small Capacitors in Fluorescent Light Ballasts

Light ballasts are the primary electric components of fluorescent light fixtures and are generally located within the fixture under a metal cover plate. The ballast units are generally composed of a transformer to reduce the incoming voltage, a small capacitor (which may contain PCBs), and possibly a thermal cut-off switch and/or safety fuse. These components are surrounded by a tar-like substance that is designed to muffle the noise that is inherent in the operation of the ballast. This substance covers the small capacitor. When a ballast unit fails, excessive heat can be generated which will melt or burn the tar material, creating a characteristic foul odor.

In considering causes of ballast failure, some privately conducted tests have indicated that operation of power-saving lamps with a standard ballast or standard lamps with a power-saving ballast tends to significantly increase the ballast operating temperature and decrease its normal life-span. It appears that ballasts will fail less frequently if standard lamps are used only with standard ballasts and power-

This is the ballast portion of a typical fluorescent light fixture.

saving lamps with power-saving ballasts. Fluorescent lamps should be changed in pairs; new lamps should not be used with old lamps.

Does Your Fluorescent Light Ballast Contain PCBs?

Before EPA banned the manufacture of PCBs in 1978, PCBs were used in the manufacture of fluorescent light ballasts. The use of PCBs in ballasts manufactured prior to 1978 is not regulated by EPA. All light ballasts manufactured since 1978 which do not contain PCBs should be marked by the manufacturer with the statement *"No PCBs."* For those manufactured prior to that time, or for those ballasts which contain no statement regarding PCB content, you should assume that they do contain PCBs.

If the ballast does contain PCBs, they are located inside the small capacitor. There would be approximately 1 to 1½ ounces of PCB fluid in the capacitor itself. If the ballast fails, the capacitor *may* break open, allowing the PCB oil to drip out of the fixture. The capacitor does not always leak when the ballast fails, but when it does happen, measures should be taken to limit or avoid personal exposure.

What Should I Do If My Light Ballast Leaks?

EPA has these recommendations for anyone with a fluorescent light ballast leaking PCBs:

1. Vacate the room or area immediately and open any windows to ventilate the room to the outside. If the incident occurred in a room which cannot be vented, the person replacing the failed ballast and cleaning up can reduce exposure by wearing a chemical cartridge respirator equipped with an organic vapor cartridge.

Once you have removed the fluorescent tubes and the control cover, you will be able to easily access the ballast(s). Note the gloves and goggles worn to prevent possible personal contact with PCBs.

2. Turn off the light fixture at the switch and disconnect electricity at the fuse or breaker box. Let the ballast unit cool for 20-30 minutes before proceeding.

   If the room is fully ventilated, the amount of PCB-contaminated particulate matter in the air should decrease significantly enough to make negligible any risk from breathing.

3. Wear rubber gloves that will not absorb PCBs (e.g., neoprene, butyl, or nitrile). Further, if you will be working directly under the fixture, consider using additional protective gear such as goggles (or a face shield) and a rubber apron to help guard against possible exposure from

further leaking or cleanup activities. Exercise caution to avoid personal contamination (e.g., from touching your face with a contaminated glove).

During the cleanup or removal period, smoking should be prohibited in the area because smoking increases the inhalation rate of contaminated air. In addition, you may be using a flammable solvent in the cleanup.

4. Remove the fluorescent lamps.

5. Recheck that the power is off at the fuse or breaker box. Remove the metal cover over the wiring and ballast unit; loosen the ballast unit by taking out the metal screws which hold it to the end of the fixture; cut the electrical wires going to the ballast and remove the ballast. *Note: Wire connectors can be used when installing a new ballast.*

6. Proceed to clean up leaks using the following guidelines.

   PCBs that leak onto *nonabsorbent* surfaces such as table tops and uncarpeted floors should first be cleaned up by wiping with a rag or paper towel or by scraping with a putty knife if hardened. Avoid smearing the PCB around. This would only contaminate a larger area. Surfaces should then be thoroughly cleaned twice using an appropriate solvent or detergent. Only certain solvents are effective in cleaning up spilled PCBs. These include *mineral spirits, deodorized kerosene, turpentine,* and *rubbing alcohol.* Certain detergents containing trisodium phosphate (such as *"Soilax"* or *"Spic 'n Span"*) may also be used. However, they should be used only at *full strength* and applied with a damp rag rather than diluted in a bucket. That solution would become contaminated and cannot legally be disposed of in the sewer system. Some of the other effective detergent products (which are commercially available) include: *"Triton X-100"* (Rohm-Haas), *"Stanex"* (Monsanto), and *"Power Cleaner 155"* (Penetone Corp.). EPA does not endorse these particular products. Other effective products may also be available.

   For leaks onto *absorbent* materials such as drapes and carpets, there is no reliable way to clean and decontaminate the material. In the case of rugs and fabrics, the material should be cut away in a six-inch radius around the contamination point(s). In areas where foot traffic has spread contamination, the entire carpet should be disposed of. Proper disposal procedures for all such materials are described in the following section. Associated surfaces, such as flooring under contaminated carpeting, should be thoroughly cleaned with a solvent or detergent as previously described.

7. Contaminated materials (*ballasts, rags, contaminated clothing, gloves, drapes, carpets, etc.*) should be packed into crumpled newspapers or other sorbent materials (*sawdust, kitty litter, vermiculite, soil, etc.*) and placed in a double thickness plastic bag. This bag should be taken to one of the transporters listed in the following section of this fact sheet. There, the contaminated materials will be packed in a drum approved for PCBs by the Department of Transportation and finally disposed of at an EPA approved site.

   (One might consider discarding the entire light fixture instead of decontaminating the unit. This would eliminate the chance of skin coming into direct contact with the PCBs while cleaning inside the light fixture.)

8. When you are completely through with the cleanup process, and contaminated materials and protective clothing have been packed for disposal, you should wash your hands thoroughly with detergent.

9. Continue to ventilate the room for 24 hours before reuse.

How to Get Rid of Your PCBs

Arrangements may be made with one of the following Seattle area transporters for shipment of ballasts, PCB-soiled items, or fluorescent fixtures containing PCBs to an EPA-approved chemical waste processing site. You may wish to call more than one transporter to compare prices. If you live outside of the Seattle metropolitan area, please check the telephone yellow pages under waste disposal to locate an authorized transporter. If you have difficulty finding a transporter, please call EPA's regional office in Seattle at (206) 442-1270.

1. Chemical Processors, Inc. (206) 767-0350.
2. Northwest Tank Service (206) 622-1080
3. Crosby and Overton (206) 572-3030 (24-hour number)
4. Westinghouse (206) 282-4111

For homeowners within the Seattle metropolitan area, small numbers (less than 5) of non-leaking fluorescent light ballasts can be dropped off at one of four collection